REMARKS

This application has been reviewed in light of the Office Action dated November 5, 2003. Claims 51-57 are presented for examination. Claim 51 has been amended to define more clearly what Applicant regards as his invention. Claim 51 is in independent form. Favorable reconsideration is requested.

In the Office Action, Claims 51-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,666,132 (Ochi et al.) in view of U.S. Patent 5,742,247 (Chujo). Claim 57 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ochi et al. in view of U.S. Patent 6,278,234 (Ono et al.).

According to an aspect of the invention to which Claim 51 relates, an image forming apparatus is provided. The apparatus comprises a display panel (1) adapted to display an image, a pulse width modulation signal generator (6) adapted to input digital data (XD_1-XD_{480}) corresponding to the image and a clock signal (PCLK), and to count pulses of the clock signal in correspondence with the digital data to generate a pulse width modulation signal (PWMout) for driving the display panel. The pulse width modulation signal has a pulse width that corresponds to a number of pulses of the clock signal corresponding to a gray scale level of the image (page 25, line 2 through page 26, line 4, and page 28, line 24 through page 29, line 22), and a clock generator (Figs. 31 and 36) for generating the clock signal. The clock generator is provided with a memory (203 in Fig. 31, 211 in Fig. 36) for storing a plurality of items of data, and the clock generator is arranged to generate each pulse of the clock signal in accordance with one (e.g., as shown

in Fig. 32) of the items of data read from the memory in synchronism with a reference clock signal (nPCLK).

The reference numerals and figures identified above are for illustrative purposes only, and the embodiments associated therewith are not intended to be limiting to the scope of the claimed subject matter.

One notable feature of the image forming apparatus of Claim 51 is a clock generator that has memory for storing a plurality of items of data. A user (or the image forming apparatus per se) can select a suitable one of the items of data to generate each pulse of a clock signal. Another notable feature is a pulse width modulation signal generator that can generate a pulse width modulation signal (PWMout) for digital data corresponding to a gray scale level of an image by counting the pulses of the clock signal (PCLK).

Ochi et al. discloses a driver 910 having a memory 910a for storing an image signal of each 4-bit data, and a pulse-width modulator 910b for generating a pulse-width modulation signal corresponding to the image signal.

The Official Action states that *Ochi et al.* teaches a clock generator adapted to generate a clock signal Φ_2, and a clock generator is provided with a memory 10 for storing a plurality of items of data. However, in *Ochi et al.*, memory 10 stores image data to be pulse-width modulated, not items of data for generating each pulse of the clock signal.

The Office Action also asserts that col. 7, lines 10-12 of *Ochi et al.* discloses counting clock signals Φ_1 to generate a pulse-width modulation signal for driving

a display panel. However, the cited portion (column 7, lines 10-12) of *Ochi et al.,* is seen to teach merely a phase control signal 20 that is periodically changed by counting pulses of clock signal Φ_1. Moreover, the phase control signal 20 is changed to invert the phase of clock signal Φ_4 to alternate the polarity of an LCD driving voltage.

With regard to *Chujo*, Applicant understands *Chujo* to disclose a control waveform generation circuit which reads a byte data from a memory 6 address and a counted value from an address counter 4, and latches and shifts the byte data based on a reference clock to generate an optimal analog control waveform. The control waveform is supplied to driver circuits (not shown) and used as a horizontal control waveform for the CRT (not shown) of Fig. 1. In *Chujo* an analog control waveform is generated to supply to drivers in accordance with the data read from memory 6.

However, each pulse of the clock signal of *Chujo*, is not generated in accordance with one of the plurality of items of data read from memory 6 as required by Claim 51. Moreover, the analog control waveform of *Chujo* does not correspond to a gray scale level of an image, to be displayed on a CRT.

Indeed, nothing in either *Ochi et al.* or *Chujo* would teach or suggest (1) a clock generator that has a memory for storing a plurality of items of data to generate each pulse of a clock signal, and (2) a pulse width modulation signal generator that can generate a pulse width modulation signal for digital data corresponding to a gray scale level of an image by counting the pulses of the clock signal, as required by Claim 51.

Applicant submits that, for at least the reasons discussed above, the proposed combination of *Ochi et al.* and *Chujo*, assuming such combination would even be

permissible, would still fail to teach or suggest the image forming apparatus having features as recited in Claim 51. Accordingly, Applicant submits that Claim 51 is patentable over *Ochi et al.* and *Chujo*, whether considered separately or in combination.

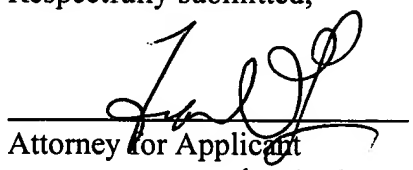
A review of the other art of record, including *Ono et al.*, has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above as references against independent Claim 51 herein. As such, Claim 51 is believed to be patentable over the art of record.

The other claims in this application depend from Claim 51 discussed above, and, therefore, are submitted to be patentable for at least the same reasons as is Claim 51. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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